Volume 20 1994 Table of Contents

No. 1 Frontiers in Stem Cell Biology Free Communications

pp. 1–222

B. Bull: Marcel Bessis (1917–1994) 3

Frontiers in Stem Cell Biology

M. Ogawa, J.P. Shih, and N. Katayama: Enrichment for Primitive Hemopoietic Progenitors of Marrow Cells from 5-Fluorouracil-Treated Mice and Normal Mice . 7

I.D. Bernstein, R.G. Andrews, and S. Rowley: Isolation of Human Hematopoietic Stem Cells 15

T. Kinashi and T.A. Springer: Adhesion Molecules in Hematopoietic Cells 25

L.W.M.M. Terstappen and S. Huang: Analysis of Bone Marrow Stem Cell 45

J.N. Ihle, B.A. Witthuhn, F.W. Quelle, O. Silvennoinen, B. Tang, and T. Yi: Protein Tyrosine Phosphorylation in the Regulation of Hematopoiesis by Receptors of the Cytokine-Receptor Superfamily 65

C. Eaves and A. Eaves: Differential Manipulation of Normal and Chronic Myeloid Leukemia Stem Cell Proliferation *In Vitro* 83

P.J. Quesenberry, R.B. Crittenden, P. Lowry, E.W. Kittler, S. Rao, S. Peters, H. Ramshaw, and F.M. Stewart: *In Vitro* and *In Vivo* Studies of Stromal Niches . 97

D. Orlic, S. Anderson, and D.M. Bodine: Biological Properties of Subpopulations of Pluripotent Hematopoietic Stem Cells Enriched by Elutriation and Flow Cytometry 107

P. McGlave, C. Verfaillie, and J. Miller: Interaction of Primitive Human Myeloid and Lymphoid Progenitors with the Marrow Microenvironment 121

A.R. Migliaccio, M. Baiocchi, B. Durand, K. Eddleman, G. Migliaccio, and J.W. Adamson: Stem Cell Factor and the Amplification of Progenitor Cells from $CD34^+$ Cord Blood Cells 129

A.W. Nienhuis: Gene Transfer into Hematopoietic Stem Cells 141

Free Communications

T. Nakamura, S. Hasegawa, H. Shio, and N. Uyesaka: Rheologic and Pathophysiologic Significance of Red Cell Passage through Narrow Pores 151

J. Stuart: Commentary: On the Determination of Red Cell Deformability by Filtration through Narrow Pores 166

V.B. Makhijani and G.R. Cokelet: *In Vivo* Polymerization of Sickle-Cell Hemoglobin: A Theoretical Study 169

C.T. Noguchi: Commentary 184

M. Kawai, H. Hattori, K. Yasue, H. Mizutani, M. Ueda, T. Kaneda, and T. Hoshino: Development of Hemopoietic Bone Marrow within the Ectopic Bone Induced by Bone Morphogenetic Protein 191
G. Brecher: Commentary 200

J. Hagmann, D. Dagan, and M.M. Burger: Lysis of Blood Platelets by Human Osteosarcoma Cells *In Vitro* 203
B. Houwen: Commentary 217

No. 2/3 International Conference on Cord/Blood Transplantation and Biology/Immunology

pp. 223–644

Indianapolis, Indiana, November 8–11, 1993
Hal E. Broxmeyer, Guest Editor

H.E. Broxmeyer: Guest Editorial 223

Clinical Experience

J.E. Wagner: Umbilical Cord Blood Transplantation: Overview of the Clinical Experience 227

E. Vilmer, E. Quelvennec, E. Plouvier, E. Denamur, P. Rohrlich, J. Elion, and G. Sterkers: HLA-Mismatched Cord Blood Transplantation: Immunological Studies 235

P.G. Beatty: Commentary: Results of Umbilical Cord Transplantation 242

N.A. Kernan, M.L. Schroeder, D. Ciavarella, R.A. Preti, P. Rubinstein, and R.J. O'Reilly: Umbilical Cord Blood Infusion in a Patient for Correction of Wiskott-Aldrich Syndrome 245

M.R. Vowels, K. Tiedemann, R. Lam-Po-Tang, and D.P. Tucker: Use of Granulocyte-Macrophage Colony-Stimulating Factor in Two Children Treated with Cord Blood Transplantation 249

J.J. Nemunaitis: Commentary: Cytokine Support in Umbilical Cord Blood Transplantation 256

S. Issagrisil: Cord Blood Transplantation in Thalassemia 259

J.J. Nemunaitis: Commentary: Cytokine Support after Cord Blood Transplantation 264

R.N. Pahwa, A. Fleischer, S. Shih, D. Uckan, S. Durham, P. Garafolo, G. Karayalcin, A. Shende, A. Redner, C. Paley, R.A. Good, and P. Lanzkowsky: Erythrocyte-Depleted Allogenic Human Umbilical Cord Blood Transplantation 267

J. Kurtzberg, M. Graham, J. Casey, J. Olson, C.E. Stevens, and P. Rubinstein: The Use of Umbilical Cord Blood in Mismatched Related and Unrelated Hemopoietic Stem Cell Transplantation 275

B.-J. Shen, H.-S. Hou, H.-Q. Zhang, and X.-W. Sui: Unrelated, HLA-Mismatched Multiple Human Umbilical Cord Blood Transfusion in Four Cases with Advanced Solid Tumors: Initial Studies 285

J.E. Wagner: Commentary: Hematologic Rescue with Umbilical Cord Blood Progenitor Cells 293

P. Wernet, G. Kogler, and T. Somville: The Rapid Detection of the Quantity (Genotype) and Cell Lineage (Immunophenotype) of Contaminating Maternal White Cells in Cord Blood Samples by Fluorescence In Situ Hybridization Combined With Confocal Laser Scanning Microscopy 296

In Utero Tissue Typing and Disease Markers

A.D. Auerbach: Umbilical Cord Blood Transplants for Genetic Disease: Diagnostic and Ethnical Issues in Fetal Studies 303

M.S. Pollack and G.J. Grant: Strategies for Prenatal HLA Typing for Potential Cord Blood Donor Evaluation 310

Assays of Stem/Progenitor Cells and How Best to Quantitate the Earliest Cells

J. Vormoor, T. Lapidot, F. Pflumio, G. Risdon, B. Patterson, H.E. Broxmeyer, and J.E. Dick: SCID Mice as in In Vivo Model of Human Cord Blood Hematopoiesis 316

A. Orazi, S.E. Braun, and H.E. Broxmeyer: Commentary: Immunohistochemistry Represents a Useful Tool to Study Human Cell Engraftment in SCID Mice Transplantation Models 323

E.D. Zanjani, M.R.G. Silva, and A.W. Flake: Retention and Multilineage Expression of Human Hematopoietic Stem Cells in Human-Sheep Chimeras 331

F. Hirayama and M. Ogawa: Cytokine Regulation of Early B-Lymphopoiesis Assessed in Culture 341

P.J. Quesenberry, H. Ramshaw, R.B. Crittenden, F.M. Stewart, S. Rao, S. Peters, P. Becker, P. Lowry, M. Blomberg, J. Reilly, and C. Tiarks: Engraftment of Normal Murine Marrow into Nonmyeloablated Host Mice 348

Characterization and Purification of Human Hemapoietic Stem and Progenitor Cells

J. Tong, A.M. Gianni, S. Siena, E.F. Srour, M. Bregni, and R. Hoffman: Primitive Hematopoietic Progenitor Cells Are Present in Peripheral Blood Autografts 351

L. Murray, D. DiGiusto, B. Chen, S. Chen, J. Combs, A. Conti, A. Galy, R. Negrin, G. Tricot, and A. Tsukamato: Analysis of Human Hematopoietic Stem Cell Populations 364

G. Kogler, T. Somville, and P. Wernet: Evaluation of the Ceprate LC34 Affinity System for the Enrichment of $CD34^+$ Hematopoietic Stem Cells from Cord Blood 371

Growth Characteristics and Expansion of Human Stem and Progenitor Cells

P.M. Lansdorp, W. Dragowski, T.E. Thomas, M.-T. Little, and H. Mayani: Age-Related Decline in Proliferative Potential of Purified Stem Cell Candidates 376

C.M. Traycoff, M.R. Abboud, J. Laver, D.W. Clapp, R. Hoffman, P. Law, and E.F. Spour: Human Umbilical Cord Blood Hematopoietic Progenitor Cells: Are They the Same as Their Adult Bone Marrow Counterparts? 382

L.W.M.M. Terstappen and F. Lund-Johansen: Commentary: Hematopoietic Progenitors in Fetal and Adult Tissue 392

S. Heimfeld, D.F. Kalamasz, B.L. Fogarty, R. Fei, Z.N. Tsui, H.M. Jones, and R.J. Berenson: Isolation and Ex Vivo Expansion of $CD34^+$ Cells from Cord Blood Using Dextran Sedimentation and Avidin Column Selection 397

J.S. Lebkowski, L. Schain, M. Hall, M. Wysocki, B. Dadey, and W. Biddle: Rapid Isolation and Serum-Free Expansion of Human $CD34^+$ Cells 404

D.E. Van Epps, J. Bender, W. Lee, M. Schilling, A. Smith, S. Smith, K. Unverzagt, P. Law, and J. Burgess: Harvesting, Characterization, and Culture of $CD34^+$ Cells from Human Bone Marrow, Peripheral Blood, and Cord Blood . . . 441

A.R. Migliaccio, G. Migliaccio, and J.W. Adamson: Expansion of Human Neonatal Progenitor Cells In Vitro under Serum-Deprived Conditions 424

J. Hatzfeld, P. Batard, A.A. Cardoso, M.-L. Li, B. Panterne, P. Sansilvestri, M. Ginsbourg, J.-P. Levesque, and A. Hatzfeld: Purification and Release from Quiescence of Umbilical Cord Blood Early Progenitors Reveal Their Potential to Engraft Adults 430

L. Ruggieri, S. Heimfeld, and H.E. Broxmeyer: Cytokine-Dependent Ex Vivo Expansion of Early Subsets of $CD34^+$ Cord Blood Myeloid Progenitors Is Enhanced by Cord Blood Plasma, but Expansion of the More Mature Subsets Is Favored 436

M. Xiao, H.E. Broxmeyer, M. Horie, S. Grigsby, and L. Lu: Extensive Proliferative Capacity of Single Isolated $CD34^{+++}$ Human Cord Blood Cells in Suspension Culture 455

M.A.S. Moore and I. Hoskins: Ex Vivo Expansion of Cord Blood-Derived Stem Cells and Progenitors 468

G. Van Zant, S.A. Rummel, M.R. Koller, D.B. Larson, I. Drubachevsky, M. Palsson, and S.G. Emerson: Expansion in Bioreactors of Human Progenitor Populations from Cord Blood and Mobilized Peripheral Blood 482

H.E. Broxmeyer, L. Benninger, M. Yip-Schneider, and S.E. Braun: Commentary: A Rapid Proliferation Assay for Unknown Co-Stimulating Factors in Cord Blood Plasma Possibly Involved in Enhancement of In Vitro Expansion and Relating Capacity of Human Hematopoietic Stem/Progenitor Cells 492

Gene Therapy Using Retroviruses and Parvo/Adeno-Associated Viruses

D.W. Emery, T. Sablinski, J.S. Arn, C. LeGuern, and D.H. Sachs: Bone Marrow Culture and Transduction of Stem Cells in a Miniature Swine Model 498

D.A. Williams and T. Moritz: Umbilical Cord Blood Stem Cells as Targets for Genetic Modification: New Therapeutic Approaches to Somatic Gene Therapy 504

Y.-J. Shi, R.-N. Shen, L. Lu, and H.E. Broxmeyer: Comparative Analysis of Retroviral Mediated Gene Transduction into $CD34^+$ Cord Blood Hematopoietic Progenitors in the Presence and Absence of Growth Factors 517

L. Lu, M. Xiao, D.W. Clapp, Z.-H. Li, and H.E. Broxmeyer: Stable Integration of Retrovirally Transduced Genes into Human Umbilical Cord Blood High-Proliferative Potential Colony-Forming Cells (HPP-CFC) as Assessed after Multiple HPP-CFC Colony Replatings In Vitro 525

A. Srivastava: Parovirus-Based Vectors for Human Gene Therapy 531

M.E. Hanley, J.A. Nolta, R. Parkman, and D.B. Kohn: Umbilical Cord Blood Cell Transduction by Retroviral Vectors: Preclinical Studies to Optimize Gene Transfer 539

Immunological Reactivity of Cord Blood Cells

F.T.H. Lim, L. van Winsen, R. Willemze, H.H.H. Kanhai, and J.H.F. Falkenburg: Influence of Delivery on Numbers of Leukocytes, Leukocyte Subpopulations, and Hematopoietic Progenitor Cells in Human Umbilical Cord Blood 547

D.T. Harris: Cord Blood Transplantation: Implication for Graft vs. Host Disease and Graft vs. Leukemia 560

G. Risdon, J. Gaddy, and H.E. Broxmeyer: Allogeneic Responses of Human Umbilical Cord Blood 566

M.G. Roncarlo, M. Bigler, E. Ciuti, S. Martino, and P.-A. Tovo: Immune Responses by Cord Blood Cells 573

Cord Blood Banking: Update on the Current Situation

P. Rubinstein, P.E. Taylor, A. Scaradavou, J.W. Adamson, G. Migliaccio, D. Emanuel, R.L. Berkowitz, E. Alvarez, and C.E. Stevens: Unrelated Placental Blood for Bone Marrow Reconstitution: Organization of the Placental Blood Program 587

A. Gluckman: European Organization for Cord Blood Banking 601

J. McCullough, M.E. Clay, S. Fautsch, H. Noreen, M. Segall, E. Perry, and D. Stroncek: Proposed Policies and Procedures for the Establishment of a Cord Blood Bank 609

J.J. van Rood: Commentary: Cord Blood Banking for Bone Marrow Reconstitution: A Need for Standardization and International Cooperation 627

Erratum 630
Index to Volume 20 631